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The Independent Ensoniq User's Newsletter

MASOS FOR THE MASSES

PART THREE

By Clark Salisbury

Welcome back for more MASOS mania! We're going to wrap up this series of articles with a look at combining MASOS functions to get some pretty nifty results, and take a quick look at a few MASOS applications. But first, a brief review.

MASOS functions are performed directly on wavesample data. These functions are generally not limited to operating between page boundaries, so to implement them we must know precisely which area(s) of memory we are dealing with. We use the Source Start and Source End parameters [85] - [88] to set the area of memory we wish to process, and the Destination Start parameters [89] - [90] and Destination Bank Select Parameter [94] to set the area of memory where the results of our processing will end up.

So far, however, we have only worked with a single MASOS function at a time. But some of the most interesting effects are achieved by combining two or more MASOS functions. One example of this would be "digital cross-fade synthesis", a technique we can use to fade in and out between two (or more) combined. Aside from being a good way to arrive at some nifty hybrid sounds, this technique can also be used for nailing some of the trickier loops one runs up against from time to time. Can't loop it? Simply loop an easier sound (usually a similar sound, but with less harmonic or dynamic movement), and cross fade into it from the un-loopable sample.

Anyway, let's see how to get the hang of this. What we'll attempt to do here is to cross-fade between the trumpet sound from Disk #3 (upper 2) and the flute sound from Disk #1 (upper 3). There's a good deal of prep involved, so let's get started.

Load the trumpet sound into the upper keyboard half. We're going to need to move it temporarily to the lower half so that we have a place to load the flute to without dumping the trumpet. First we need to check out a couple of things about what area of memory the trumpet occupies. Verify that the trumpet sound is wavesample #1, and check to see if it is multisampled. I usually do this by hitting [REC SEQ] and Key #1 (to select Wavesample #1), checking the value of Parameter [27] Initial Wavesample (yup - it's set to a value of 1) and then hit Parameter [72] for a top key reading. Since the reading is 61, (the highest key possible on the Mirage

keyboard), it's pretty safe to assume that there is only one trumpet sample on this keyboard half.

Next, turn off the Loop Switch [65]. As a matter of course, you should always turn off the loop switch before performing any MASOS functions. Otherwise you may have some rather unpredictable results, as pointed out in last month's article. If you are planning on re-looping the sound you can always take readings of parameters [62], [63], and [64], the Loop Start, Loop End and Loop End Fine Adjust parameters. For this particular sample their, respective values are 2E, 2E, and FF (hex).

Next we need to check, which area of memory is being used for this sample. Hit Parameter [60] Wavesample Start. It reads 00. Parameter [61] will give us the wavesample end point. It happens to be 2F.

Okay. Now we need to allocate memory in the lower keyboard half for this sample. To keep things easy, we'll stuff our trumpet sample into Lower Wavesample #1, beginning at memory location 00 (we could put it elsewhere, but then we'd end up having to calculate the hex values for the new location, and this is only temporary storage anyway). Hit [PLAY SEQ] and #1 to select Lower Wavesample #1. Key in Parameter [60] Wavesample Start and set its value to 00. Next hit Parameter [61] Wavesample End and give it a value of 2F.

Now that we have dimensioned the space that we are going to stick our trumpet sample into, all that remains is to copy it over. Hit [REC SEQ] and #1 to select Upper Sample #1 as the one to be copied. Press [17] Lower Copy, and respond to the flashing prompt by keying in #1. This tells the Mirage that you want the selected wavesample to be copied to the lower keyboard half, and specifically into wavesample location #1. Hit the ENTER key. Voila! The trumpet is now in the lower keyboard half, wavesample #1. If you wish, you may also copy its program parameters from upper to lower by hitting Parameter [15], #1, and ENTER.

Load the flute sample (Disk #1, upper sound #3) into the upper half of the keyboard. Check that it's a single sampled sound and that it occupies wavesample #1. Make a note of its start and end points (Parameters [60] and [61], respectively). Make a note of its loop points (Parameters [62], [63],

and [64]), and then turn off the Loop Switch (Parameter [65]). Hey! What's the deal, here? I still hear the sample playing even after I've turned off the Loop Switch!

Well, what I didn't tell you was that the flute sample is in mix mode. There are actually two different flute samples playing to create the flute sound on Disk #1. Life is full of surprises.

Anyway, we only want one flute sample for now, so turn Parameter [28] Mix Mode off. That should take care of that. Now what we'd like to do is create a sound that cross-fades from trumpet into flute. But there's one problem. The non-looped trumpet sound that we have on the lower half of the keyboard doesn't really last long enough to do a good fade. But there's a fix for that. We can replicate the last page of the trumpet sound throughout our available memory, effectively making it a much longer sample. The caveat here is that although this will work for the trumpet wavesample, it won't work for all samples. The problem is that since replicating makes copies of a single page of memory, it will work well only for samples whose waveforms fit neatly between page boundaries. We know that the trumpet will work, since it is looped on a single page at the end of the sample. For samples with multiple page loops, you could use the MASOS copy function to copy the looped portion of the waveform into the area of memory beginning immediately after the wavesample you're working on, and setting the wavesample's end point correspondingly.

Anyway, let's replicate! Hit [REC SEQ], #1 to select Lower Wavesample #1. We want to replicate the looped page of this sample. You should have it as page 2E, so set Parameter [85] Source Start: page Number to 2E. Parameter [86] Source Start: Sample Number should be left at its default setting of 00. Since we wish to replicate this page throughout the entire memory on the lower half of the keyboard, set Parameter [87] Source End: Page Number to its highest value, FF. Source End: Sample Number (Parameter [88]) can be left at its default setting of FF. Hit the [LOAD SEQ] key to initiate the MASOS function, press key #8 for replicate, then hit ENTER. The Mirage display will go blank for a few seconds. When it returns we need to set Parameter [61] Wavesample End to a value of FF so that Wavesample 1 won't stop playing at its previous end point (2F) but will continue to play through the entire memory area we have just replicated it into.

Repeat this process for the flute wavesample located in the upper keyboard memory using the numbers derived from looking up the value set for its Loop Start Parameter [62]. We should now have two nice long samples to process.

What we are going for here is a sound that starts as a trumpet and then cross-fades into a flute. The first thing we need to do is to create appropriate fade-ins and fade-outs. Let's start by fading out the trumpet.

Select Lower Wavesample #1. We want the fade to start right away, so set the value of Parameter [85] Source Start to 00. And since we want the fade to effect the entire sample, set the value of Parameter [87] Source End to FF (by the way - some interesting effects can be achieved by setting the source end to some point within the sample. The sample will

fade to the point set, then suddenly jump back to its original value. The effect is not unlike echo - try a series of short fades throughout a sample, then loop it. Should be interesting). Anyway, once your parameter controls are set hit the MASOS function key [LOAD SEQ], the number 3 key (Fade Out), and Enter. When the Mirage display returns, you should find that you have a nice smooth fade out on the trumpet.

Now to fade in the flute sound. Select Upper Wavesample #1. In this case Parameters [85] and [87] (Source Start and Source End) can be left at the values previously selected since we happen to be dealing with an area of memory identical to the one we just finished working with. Hit the MASOS function key [LOAD SEQ], #2 (Fade In), and ENTER.

Now to combine the two samples. We will be adding the lower sound to the upper so that our new sample ends up on the upper half of the keyboard, but we could just as easily go the other way.

Select Lower Wavesample #1. Since we are still dealing with the entire wavesample we can simply leave the Source Start [85] and Source End [87] parameters as they are. We need to tell the wavesample where to end up, however. So set Parameter [89] Destination Start: Page Number to 00 (since we want it to occupy the same area as our flute wavesample, which also starts at 00) and leave Parameter [90] Destination Start: Sample Number at its default setting of 00. Set Parameter [94] Destination Bank Select to UP -we want this wavesample to end up in the upper keyboard half. Hit the MASOS function key [LOAD SEQ], press key #5 (ADD), then hit ENTER. Presto! Two sounds for the price of one in the upper keyboard half. All that's left is to re-loop the last page of the upper wavesample, and we've got a whole new sound to play with.

One thing you'll notice, however. The trumpet sound is an octave lower than the flute sound. A couple of possible reasons for this spring immediately to mind. Either the trumpet was originally sampled an octave lower than the flute, or else it was sampled at a different sampling rate than the flute. This brings up an important point. If you add two sounds together that were sampled at different pitches or different rates you may end up with a composite sound that's in two different keys. This may not be what you had in mind. I recommend adding the two sounds together in sort of a test run before you spend hours scaling and fading and replicating. You may find that the two sounds you have targeted for adding actually won't end up at the same pitch. Best to check it out before investing a bunch of time with all the other processing.

At any rate, you should have a pretty decent idea of what MASOS is all about if you've stuck it out through these last three articles. I realize that we haven't covered every possible permutation of MASOS functions, but I think you can probably take it from here. If you want a little project to work on, try splicing the "tah" vocal sample from Disk #17 onto the end of the snare drum sample from Disk #4. Or how about a car ignition that cross-fades into the sound of electric guitar power-chords? Or a cymbal that turns into a human voice whispering anti-nuke slogans? Or

SOUND REVIEWS

THE K-MUSE DISKS

by Erick Hailstone

Imagine my surprise when I opened my mail box one day to find 10 new disks to review. I am used to getting 2 or 3 disks at a time. Ten is overwhelming - in fact, just too much to comment on in my usual fashion. What I'd like to do instead is present the K-Muse concept, a brief description of the disks, and a few after-thoughts.

Disks are sold in sets of ten. A set of disks always follows the same arrangement of sounds.

Disk #1: Drum Sets
Disk #2: Percussion
Disk #3: Bass with Accompaniment
Disk #4: Accompaniment 1
Disk #5: Accompaniment 2
Disk #6: Sustained Sounds
Disk #7: Orchestral Brass
Disk #8: Orchestral Strings
Disk #9: Orchestral Hits
Disk #10: Blends/Demos

Program variations are as follows: the original sample, a dampened effect, with resonance, and with slow attack. Again this is a generalized approach for all disks and all sets.

For review I received a set entitled the "London" Set.

Disk #1: Drum Sets

These are very contemporary sounds. The drums are huge, coming out of the Phil Collins school of the gated reverb effect. There is a metallic edge to most of the drums and (with the exception of a few cymbals) most seem electronic in nature ala Simmons.

Disk #2: Percussion

In this case sounds vary from sound effects to things we can easily think of as percussion instruments. Bank 2, although useful, contains sounds that almost any Mirage owner could duplicate with a few cast-iron pots and pans. Bank 3 is very hip and reminds me of Janet Jackson's pop tune "Nasty Boys." Some of the sounds have pseudo bass parts as well.

Disk #3: Bass with Accompaniment

The "Flat Pick Bass" is my favorite. It has a nice bright crisp attack to it. It sounds best with staccato phrasing. If you sustain a note you can hear a slight pitch fluctuation. The "Big Ben Comp" sounds are mallet-like in nature with an underlying sustained tone similar to a Rhodes Piano. "Trevor Bass" is darker in tone and has a chorused effect. "Trevor Brass" is an ensemble brass "hit."

Brightness is controlled by velocity. "Boy Bass" is a rounder sound than the others with velocity controlling a quick-but-slight filter attack. Boy Brass? Good sounds, but the word "brass" is a little misleading. By and large these sounds are more mallet/like or string/like. One reminds me of a hammered dulcimer.

Disk #4: Accompaniment 1

The first sound is called "Gabriel" and the lower half resembles a large bright metallic pipe that's struck. The top half thins out. The harmonics get shorter in length as we get higher in pitch. Brightness is controlled by velocity and is more prominent in the upper half. "Dolby" has a woody synth bass in the lower half and a calliope type sound; in the top half. Calliopes tend to have a certain out-of-tune quality but this one seems a bit extreme to me. The K-Muse folks warned me that one of the samples was a bit off. It was never clarified which one but they said it was correctable and I suspect this is the one. The "Sherlock Comp" reminds one of a prepared piano. Harmonically, it remains consistent up and down the keyboard so it is a more usable sound than most prepared pianos.

Disk #5: Accompaniment 2

"Marimba Twins" is pretty much what you'd imagine. It's more staccato than Ensoniq's marimba and very wooden sounding. The harder you hit the crisper the attack. "BBC" is a hammered string sound with an organ tone sustaining underneath. The three other presets yield nice variations with slight differences between the upper and lower halves. "Chiffy Voice Perc/Wine Glass" has a loose snare type attack decaying to a reed organ setting. It is softer in attack than the other sounds on this disk - as are its preset variations.

Disk #6: Sustained Sounds

"Carnaby Street Organ" has a nice percussive attack with light chorusing - a rich sound with nice variations. Preset 4 is a pipe organ. "Ghostly Cathedral Voices" (quite descriptive) have an airy, whooshy noise surrounding them. This is one of my favorite Mirage sounds of all time. "Jack the Ripper" has an artificial tuba type sound in the bottom and the top half reminds me of a dull clavinet with a soft attack.

Disk #7: Orchestral Brass

"LSO Hit" has a biting percussive attack that decays rapidly while the brass and strings take about a second to decay. The "Power Hit" sustains for

several seconds in most of its range and has a lot of tonal variation according to how hard you strike the keys. These samples stay very musical up and down the keyboard. As their pitch and length of time changes, we end up with some nice variations. "Royal Allargando" is a glissed major chord by a full orchestra. It fades quickly as strings fade in and build in volume for several seconds. "Royal Trumpeters" gives a good octave and a half of unison brass.

Disk #8: Orchestral Strings

"Arco Strings" gives us reasonable solo strings. If you follow the guide lines set by the accompanying sequence you should find this a useful sound. "Woody Strings" is an ensemble string sound that is mellower and less aggressive than Ensoniq's strings. "Major and Minor Floyd" is the same as "Major and Minor Orchestra Hits." The left hand is major and the right is minor. Although the initial attacks are slightly different they can be used as the same sound changing from major to minor.

Disk #9: Orchestral Hits

"King George Orch #1" is a great fanfare hit. There's a lot of percussion on the opening attack; cymbals, tympani, etc. All the instruments decay together in the bottom half while in the top everything drops off to strings which sustain indefinitely. "Yeah Hits" sounds like they might have been lifted from the song "Owner of a Lonely Heart" by the group Yes. The lower is a nasty rock guitar power chord (5ths). The upper is a sound created using a Fairlight Sampler. It appears to be a quiro, some brass and a human being screaming. Great! "Macbeth's Hits" gives a nice crisp drum attack falling off to low sustaining strings. The top half has a slight crescendo in the loop.

Disk #10: Designer Blends/Demos

Let's leave this one a surprise. Let me just say this - initially, this one's the most fun.

K-Muse now has three sets of disks out; LONDON, LA, and NEW YORK and two more sets coming out soon. These disks, more than anything else out for the Mirage, indicate its potential in full force. Now we truly have an instrument that is 10 drum sets, 20 different basses, and is capable of duplicating an orchestra. The price of a set of 10 disks is about \$200. Ensoniq's disks are \$19.95 a shot. Since you have to buy these in such a large set, it would be nice to see a quantity price break (relative to Ensoniq). I wish, in addition, that they hadn't taken the generic preset route either. The info sheet provided indicates that presets are 1) the original sample, 2) a dampened effect, 3) with resonance, and 4) with slow attack. In some cases this yields very nice variations. In others - perhaps a little more effort would have provided even more useful sounds. This is another reason I would've liked to have seen these at a slightly lower price.

Aside from these few criticisms you get a lot, and it's all been organized for you in a logical and very useful format. Actually, my first impulse on hearing a lot of these sounds is to start writing music. I've been waiting for someone to take this approach and more power to 'em. I sure hope there are some more creative folks out there who will make as broad a contribution to the Mirage as the folks at K-Muse have.

Erick Hailstone studied composition and arranging at the University of Nevada and at Berklee College of Music. He has been involved with synthesizers and related technology for the past seven years and is a partner in "The MIDI Connection," a Portland-based consulting firm. Primarily a guitarist, his orientation has been in performing and recording with these devices.

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K-MUSE INC.'S SOUND COMPOSER'S SERIES:
GOOD NEWS FOR MIRAGE OWNERS

by Rob Bryanton

Ed. note: Due to the sheer size (and expense) of the new K-Muse Disk Sets we figured, "What the hey - it's certainly not going to hurt to offer more than one opinion." So, in this issue you're going to get two reviews for the price of one (and hopefully, we'll have more opinions and additional reviews as other sets are released)...

I recently had the pleasure of hearing what I believe to be a major step forward in establishing the Mirage as an indispensable part of any keyboard player's set-up: the new Sound Composer's Series from K-Muse, Inc. There are three sets currently available, with each set consisting of ten disks, and more sets promised to be "coming soon." Frankly, the demo tape they are selling was enough all by itself to get me quite excited about the potential of their product. But now that I have heard one of the sets in its entirety, and also played with the "Disk #10" from the other two sets, I really am willing to declare this a breakthrough in software design for the Mirage.

The sets currently available are each designated by a city name: the "L.A.", the "New York", and the "London" (cute, eh?). Yet, director of sampling Arne Schulze really has done an admirable job of developing a specific character for each set, with plenty of useful sounds which one can readily associate with the set's geographical namesake. The London set, for instance, features such diverse samples as the sound of V-2 Bombs, record hits from Yes, Pink Floyd, and the London Symphony Orchestra, and imitative synth sounds a la Thomas Dolby, Peter Gabriel, and the Thompson Twins.

The quality of the samples is good to excellent. Some of the brighter synth sounds surpass anything else I have heard out of the Mirage for clarity and richness, particularly in the 10K and beyond frequency range. On the other hand, some of the more chorused, ensemble type samples seem to actually rely on a very controlled use of distortion to achieve high frequency response. Some people might find these sounds not quite as pleasing, particularly if they are big fans of the ultra-crystalline DX7 family of sounds. Don't get me wrong now, I'm not trying to label these as examples of bad sampling. Instead, let me say that they have a certain unusual grittiness in their highest frequencies, which is unlike anything else I have heard from the Mirage, and possibly the result of careful shaping of the waveform to produce a wider frequency response in an instrument that has admittedly not always been known for its "sweet high end."

Each of the sets is organized as follows: #1-drums, #2-percussion, #3-bass/comp sounds, #4-accompaniment, #5-accompaniment options, #6-sustained sounds, #7-orchestral brass, #8-orchestral string hits, #9-special orchestral hits & combinations, and #10-designer blends and demo sequences. Also, there are always four program variations, and an imaginative demo sequence for each bank of sounds.

Listening to the London set, the only disappointment I might express is there isn't much in the way of multi-sampled versions of solo instruments: you know, something along the lines of Mirage's nylon string guitar or acoustic piano disks. Certainly, the drum and percussion disks offer plenty of punchy, modern ambient drum sounds and unusual sound effects... and the bass disk offers lots of warm, usable samples, readily recognizable as standard bass guitar or synth sounds... but what the entire set offers the user is a sudden, almost mind-boggling expansion of the library of sounds available. Many of these sounds might not be identifiable as specific instruments, but their warmth and character still makes them immensely usable.

At \$199 for a ten disk set, we are not talking about a small cash outlay here. Certainly, less than \$20 a disk is a fair and competitive price, but since K-MUSE is not willing to part with their sounds other than in these packaged sets of ten, you will have to reconcile yourself to the fact that there are bound to be some samples you will find more uses for than others... this comes down to personal taste, and is the problem with any large package of sounds for any synthesizer. I'm sure K-Muse have their own very good reasons for why they have chosen this marketing tactic, and I don't disagree with their decision.

Now let me describe Disk #10 to you. This is what really sells the sets, and in fact their \$5 demo tape is made up of nothing more than recordings of the three sequences found on each set's respective tenth disk. There are no overdubs, no memory expansion for the Mirage's sequencer, and only a small amount of reverb added to the Mirage's mono output.

Disk #10, you may recall, is titled "Designer Blends." What we have here is the latest example of the electronic one-man band. Across the keyboard, we will find a basic drum kit, a bass sound, an accompaniment sound, a lead voice, and sometimes even a specialty sound of some kind. All of the sounds used here (and, of course, many others) are found in more expanded form on the other disks within the set.

If you haven't heard the K-Muse demo tape yet, you really owe it to yourself to order a copy. As an example of pushing a machine past its preconceived limits through very clever programming, these tapes really shine. The first time you hear them, it's hard to believe that all that sound could be coming

from a single pass through the 333-note sequencer. With stereo imaging and a lead vocal, these demos could pass for records!

As a composer's scratchpad for working out ideas, Disk #10 is a very exciting product. If you were using a full-featured sequencer, you could treat the Mirage as if it were four or five separate units, even to the extent of keeping each part on a separate track for easier editing. Certainly, there are going to be times where you find yourself wishing you had more than an octave or two per instrumental part, but with intelligent reassignment of each sample's top key, you may be surprised at how usable these keyboards setups can be. Retuning drum sounds to better suit an individual song's personality can also add to the potential of each bank by quite a bit. And once you've finished working things out on this very convenient single keyboard, you could then take each part, expand it out, and record to tape using either the full version of each sound found elsewhere in the set, or some other completely different sound from your arsenal that better reflects the real you.

On the "coming soon" list, K^f-Muse has announced four more sets: Classical, Techno, R&B, and Rock'n'Roll. Even if you should decide, having heard their demo tape, that the first three sets are not your cup of tea, keep your eyes open for these future releases. This is a first rate company, and it probably won't be long before they provide you with just the sound you've been looking for.

Write to K-Muse, Inc., 18653 Ventura Blvd., Suite 359, Tarzana, CA 91356.

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CLASSIFIEDS

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LET'S SWAP SOUNDS. I am interested in forming a users group to meet monthly in the Chicago area. (312) 432-7246.

British Mirage owners should all contact the United Kingdom Mirage User Group. You are bound to hear something to your advantage. Phone Matthew on 089275516 or write to: 2, Walnut Tree Cottages, The Green, Frant, N. Tunbridge Wells, East Sussex TN3 9DE.

Seattle area user's group. Call Loren at (206) 241-7825.

Recording studio interested in contacting other Mirage owners in N.Y.C. and Westchester area to start user group, exchange sounds and info. Al Hemberger, LIPS MUSIC, (914) 961-9637, Bronxville.

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Milwaukee/Madison area - are there any other Mirage owners out there? I'm interested in sharing ideas, set-ups, custom sounds, etc. Call or write if you're interested. Mike Shauluk, 2710 Horseshoe Bend, Hartland, WI 53029. (414) 367-4838 nights. (414) 382-3454 days.

SYRACUSE AREA MIRAGE OWNERS UNITE: MIDIOTS is a growing Mirage user-group. Meetings, sample trading, and techniques are just the tip of the iceberg. If interested, contact: JIM LOGAN, 339 BURNS AVE, SYRACUSE, NY 13206. (315) 437-8761. Motto: Don't be an idiot, MIDI-it.

Want to form Mirage User's Group in Hawaii. Contact Kelly Randall c/o KKUA, 765 Amona St., Honolulu, HI 96814. (808) 946-2869.

NY, NJ, CONN - Tri-state area. Exchanging samples and ideas. Will consider mailing across country with honest and sincere Mirage owners. Any interesting and clean samples out there? Gordon G. G. Gerbert, G4 Productions, 622 Odell Ave., Yonkers, NY 10710. (914) 969-5682.

SAMPLES

I will swap sounds with anybody anywhere in the world. Send me a list, tape, or disks of what you wish to swap. I will send you some excellent quality original sounds immediately. Write to: 2, Walnut Tree Cottages, The Green, Frant, N. Tunbridge Wells, East Sussex, TN3 9DE. Great Britain.

Looking for: a good lead guitar sound, sounds used by Mr. Plister, and Emulator sounds for the Mirage. Also have sampled sounds. Write: Mark Ray, PO Box 2409, Shoals, AL 35662.

Wanted: If you live in the Baltimore area or in Ocean City, MD, and are interested in exchanging sounds, please call Don at (301) 665-2946, or write to 8329 Hillendale Rd., Baltimore, MD 21234.

Wanted - I would like to trade samples with others via the mail. I have all kinds of sound effects and instrument sounds. I am very interested in samples of Oberheim or other "thick" synth type sounds. If anyone has a VES for a Commodore 64, I would be interested in any comments you may have about it. Call Kelly Norris at 205-284-1353 after 5:00 CDT or write to: Kelly Norris, 1127 Birdwood Ct., Montgomery, AL 36111.

WOW!! Novelty disks - The Three Stooges, Warner cartoons, Johnny Weismüller "Tarzans," Johnny Carson Show, etc. Fully guaranteed at \$15.95 per disk. For list and prices, send S.A.S.E. to: Talance Recording, 906 E. Elmwood Ave., Burbank, CA 91501.

I am interested in trading Mirage Disks (I own them all) for the K-MUSE "New York" series (10 disks). Contact Dave at 13440 Cambridge #308, Southgate, MI 48195.

NEW SOUND DISK FOR MIRAGE with Sequential Prophet 5, "The Legend," best sounds and Fairlight "Breathy" voices. Recorded in 24-channel recording studio. Sounds guaranteed faithfully. Price: \$29.95. Please send check or international money order - account: Ljubljanska Banka Zagreb, Acc. No. 30101-620-42-727-70170-4298/99/. Address: DARANK DIGITAL, Davorin Chuvalo, Konjoscinska 21, 41040-Zagreb, Yugoslavia, Europe.

MIRAGE OWNERS. New from OASIS - A virtual sound effects library at your fingertips. 10 new disks, 24 effects per disk, \$19.95 each. Send \$1 for catalog or \$5 for catalog plus demo cassette (refundable with first purchase). To: OASIS SOUND LIBRARY, PO BOX 1006, FULLERTON, CA 92632.

SAMPLING? - Use S.O.S. IF YOU OWN A SAMPLING DEVICE OR ARE INTO SAMPLING IN ANY FORM, YOU NEED S.O.S. S.O.S. cassettes contain dozens of sounds for you to sample. All sounds are professionally recorded on pro equipment then dubbed to high quality chrome cassettes. Best of all you can sample direct from cassette deck to sampler, repeat the sound exactly again & again, & no additional instruments, devices, or people are required. Sample any portion of the sound, mix outputs from two tapes playing different segments for totally new and different sounds. Easy cueing, great fidelity, they're GREAT!!! Tape A: sound effects, Tape B: musical instruments, Tape C: percussive. ORDER TODAY!! ONLY \$9.95 each, including postage (within U.S.A.). ALL 3 TAPES FOR ONLY \$25.00!!! (Texas residents add 5% for tax.) S.O.S. CASSETTES, Rt. 2 Box 552, Roanoke, TX 76262. Checks payable to: LAKE SOUND.

Wanted: The sound used by Loverboy in "This Could be the Night." A bright bell attack with a light synth body. Also wanted: The vocal sound used by ZZ Top in "Rough Boys." P. Wacker, 4221 W Dunlap ##250, Phoenix, AZ 85021.

TWO HOT NEW SOUND DISKS: We at I.A.M. Productions first gave you Disk 1 "Exploration in Percussion and Drums," which was a collection of 20 explosive drum and percussion sounds. Now we have Disk 2 "Effects and Drums." This diskette contains a wide range of odd effect and drum sounds. Everything from a glass tap to our dog Rover. Each diskette is \$17.95 + \$2.95 shipping and handling. Mail personal check or money order to: I.A.M. Productions, 412 North Eleventh Street, Newark, NJ 07107. Ask for details on future happenings.

WANTED: A clean sample of a DX-7 electric piano (Bell-piano...) with plenty of "metallic-bell" attack content. Please contact Mark Wyar, 1121 Middle Ave., Elyria, OH 44035 with price and info. Thanks!

SERVICES

Don't have time to wade through MASOS to customize disks for specific song/set needs? Need cowbell, clap, and crash on keys 1-3, choir and organ switchable through programs to synth and voices or piano and organ or...? You set the requirements. P. Wacker, 4221 W Dunlap ##250, Phoenix, AZ 85021.

WHY PROGRAM WHEN YOU COULD BE PLAYING? Giant patch libraries for DX7/TX7, CASIO-CZ, KORG DW8000. Any 32 patches for \$24.95! Bulk discounts! Index - \$2, demo cassette w/index - \$5. Specify synth. Also: patches for Juno1/2, Jupiter6, Poly800, Juno106. Write for details. Syntech, Hybrid Arts software priced LOW. Livewire Audio, Dept TH, 79 Shrewsbury Ave., Oceanport, NJ 07757. (201) 870-3115.

EQUIPMENT

Ensoniq Mirage keyboard. Excellent condition. \$1395 or trade for Mirage Rack Mount. Roland MSQ-700 sequencer - \$395. Mirage flight case - trade for DX7 flight case. Call Bryan in Miami (305) 551-7589.

For sale - Ensoniq Mirage. Purchased November. Still under warranty. Perfect condition. 8 disks, MASOS, and Advanced Sampler's Guide. \$1350 firm. Call or write: John Mulreman, 19 Mercer Ave., Port Monmouth, NJ 07758. 201-495-9028.

Mirage rev. 2 for sale. 6 months old w/10 factory disks, 10 blank disks, MASOS, and Advanced Sampler's Guide. Never taken on road. \$1800 or trade for Ensoniq ESQ-1. Joe (215) 698-8424. Philadelphia area.

MASOS and formatting diskettes and original "Advanced Sampler's Guide." (I had an old Mirage & got a new one.) Also - I'm looking for a clean Fairlight thick breathy flute and a Roland Jupiter samples. Write: Don Carineri, 8329 Hillendale Rd., Baltimore, MD 21234.

SOFTWARE

Commodore 64 software - Sorry, not for Mirage, but we do have several data storage and librarian programs for your other synths. Patch disks also available. Excellent software at reasonable prices. Atari ST software coming soon! Write for more information. Music Service Software, 801 Wheeler Rd., Madison, WI 53704.

IBM-PC and Mirage owners! Software is now available. For information, write: DSKIS, PO Box 8303, Cherry Hill, NJ 08002.

EMPLOYMENT

Rapidly growing keyboard company looking for representation in Canada. Excellent income, preference given early replies. Send resume to K. S., 110 963 Canada Inc., 5460 Royalmount, Suite 207, Town of Mount Royal, Quebec, Canada H4P 1H7.

FREE CLASSIFIEDS!

Well, - within limits. We're offering free classified advertising (up to 50 words) to all readers for exchanging or selling your sampled sounds on Mirage-readable disks. Additional words, or ads for other products or services, are 15 cents per word. (Unless renewed, freebie ads are removed after 4 issues.)

CHANGE OF ADDRESS

Please let us know at least four weeks in advance to avoid missing any issues. The Post Office will not reliably forward this type of mail. We need to know both your old and your new address. (Issues missed due to late or no change notification are your own dumb fault - we mailed them!)

Sound Lab™ 1.1

by Blank Software

"If you own a Mirage and a Macintosh, Sound Lab is a must have." MIX



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415863-9224 telex 6502608198

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SOFTWARE REVIEWS

"VISION": New Visual Editing from Turtle Beach

by Leslie Fradkin and Elizabeth Rose
MIDIMAX Studios, NYC

Good news for the Mirage-and-IBM owner! The endless frustrations of making good samples are coming to an end with the development of Turtle Beach's "Vision," the new Ensoniq-endorsed visual editing system. With the release of Vision, "Here-we-go-loop-de-loop" can once again become a soothing childhood ditty rather than a war song defiantly chanted as a Mirage owner goes to battle with his or her keypad to GET THAT SAMPLE.

The program is very comprehensive and relatively easy to operate. However, it assumes that you have read the Mirage Advanced Sampler's Guide. Perhaps our best recommendation of Vision is that during our beta-testing of the product, we were able to operate the program without a manual (which is now available).

The program is divided into eight pages: View, Enhance, Loop, Sample, Modifiers, Keyboard, Disk, and Quit. When the program is first booted, you are asked to select either the upper or lower keyboard half for the program to load. Selecting either "L" or "U" will load your choice into the PC, XT, AT or compatible. Due to the relatively slow speed of the MIDI standard this takes about 45 seconds. Once you are in the program, provision is made for selection of either half.

Some of the nicest features of the program are: the eight choices of menu pages are always visible from all screens - you don't have to toggle back and forth between screens to remember what your choices are; all screens are interactive - a choice made in one affects related information on the other pages. Perhaps Vision's most clever feature is that if you need to switch screens while you're working on a sample, you never lose your place. When you return to the original page on which you were working, the cursor is exactly where you left it.

Let's take a look now at the eight menus:

VIEW: The view screen provides a visual presentation of a wavesample for viewing and editing. You're shown a wavesample map for all eight wavesamples, a memory display which shows you a visual structure of the entire wavesample memory, and a view page which makes use of Vision's ingenious animate feature. The box will display the animation of all memory (meaning all wavesamples mixed together) of the current wavesample only. When you toggle the animation function, the wavesample shifts across the screen (like an oscilloscope display) one memory page at a time. This gives the user a very clear indication of what the sample looks like close up.

There is also a 3-D view mode, reminiscent of that of a Fairlight, which plots the entire wave sample as it evolves over time. Although you cannot edit from the 3-D page, it certainly is an invaluable visual aid for seeing what you're hearing.

ENHANCE: This screen gives access to parameters which change the recorded wavesample. Enhancements include MASOS, data manipulation functions, wavesample operations such as rotate and copy, and added Vision functions. All MASOS parameters are available from this page. Perhaps the most important feature of this page is Vision's Interpolate function. "Interpolate," according to Roy Smith, "...doubles the number of sample offsets used to store a wavesample. The new offsets are averaged between the existing sample values. This greater resolution has the virtual effect of doubling the sample rate." When used judiciously, this feature yields remarkable results. You can actually increase the apparent bandwidth of a sample to as high as 100K in some cases. Of course, the manual wisely points out that this requires double the memory of the original sample - as it should. Remember you can't sample at very long lengths of time when you manipulate this function.

LOOP: The Loop screen establishes what portion of a wave table will be played repeatedly when keys are sustained. If you've ever had trouble looping at the keypad of the Mirage (and who hasn't?), this page gives you all the visual information you need to make glitch-free loops. Using a cross-point and baseline display grid, you can see the portion of the waveform that forms the loop start and loop end. As an additional feature, the loop switch which is accessible on this page is interactive and accessible on the pages of the menu.

SAMPLE: The Sample page controls recording parameters, memory allocation, playback parameters and loop parameters. You can control the sample time, the input filter frequency, sampling thresholds, wavesample start and end points, relative coarse and fine tuning, and top key parameters, to name a few. By having all these parameters before you in table form you get a complete overall picture of the recording status of the incoming sample. As a result, accurate sampling of any source becomes a much easier task.

MODIFIERS: The Modifier screen gives access to the Mirage oscillators, filter and amplifier sections. Using a visual graphic display of envelopes (similar to many DX-7 voicing programs), keeping track of your



Presents:

Vision

Visual Editing for the Mirage and IBM PC, XT, AT

by Turtle Beach Softworks

Created by seasoned samplers, **Vision** is an unbeatable new sound design program for the IBM, PC, XT, AT or compatible, that can make sound manipulation easier for Mirage users. The program is designed specifically for visual editing and allows fast, easy wavesample editing and parameter manipulation without many of the drawbacks of other sound design programs.

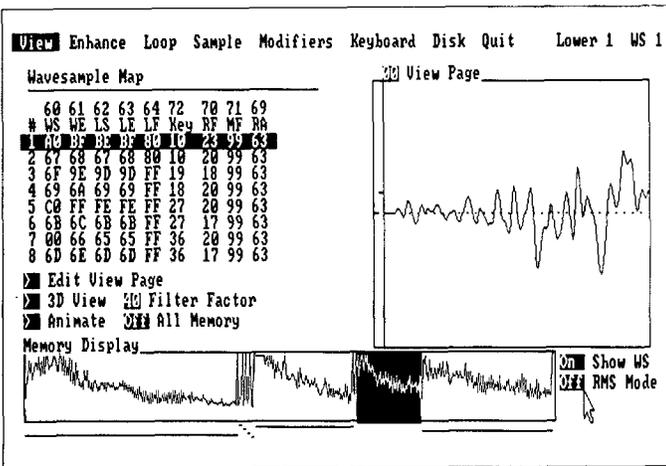
Vision features 8 different screens which are simple to locate and easy to read. Each **screen** performs several distinct functions, making such chores as looping and editing a snap rather than a hit or miss ordeal.

Vision contains a complete manual, program diskette for the PC and 2 MASOS-I diskettes.

FEATURES:

- 3-D graphic wavesample display
- Easy to remember one key commands
- 4 note PC keyboard sound ability
- Exclusive animate function
- Specially designed user interface to ease parameter modification
- PC disk sound storage ability
- A Mirage diskette copy function
- Advanced Samplers Guide style printout for all program parameters

Vision has been given an exclusive endorsement by Ensoniq and is available through authorized Ensoniq dealers worldwide. For more information contact Turtle Beach Softworks at 1912 Alcott Road, York, PA 17402.



The View Screen

The View Screen - The View screen shows the wavesample memory of the entire keyboard with the current wavesample highlighted. View, edit and **Vision's** exclusive animate function permit waveform manipulation and even allow you to help correct tuning and volume problems and find ideal loop points.

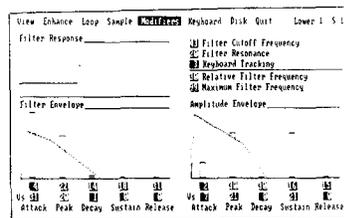
The 3D Screen - The 3D screen allows you to see changes in the wavesample's pitch, amplitude, phase and volume all at the same time. The 3D page and animate page combine to give you unsurpassed ability to view wavesamples as they occur in time.

The Modifiers Screen - This screen permits editing of all filter and amplifier settings, plotting the filter and amplifier envelopes and velocity information as you change them.

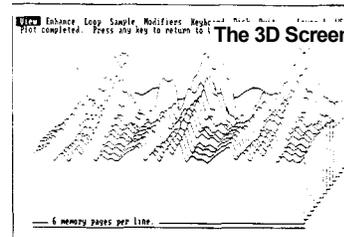
The Loop Screen - Short and long loops are easily found with the loop screen. The edit option allows you to fine tune the loop end page to produce clickless loops.

This system requires:

- An IBM PC, XT, AT or compatible 8088 based computer
- An IBM Color Graphics Adapter, Hercules Graphics Adapter or other popular graphics adapters
- At least 320K memory, 1 disk drive, and DOS 2.0 in the PC
- An IBM PC MIDI Interface: either an Octave-Plateau OP-4001 or a Roland MPU-401/MIF-lpc
- An Ensoniq Mirage DSK-8 or Multi-Sampler DMS-8
- 2 MIDI cables

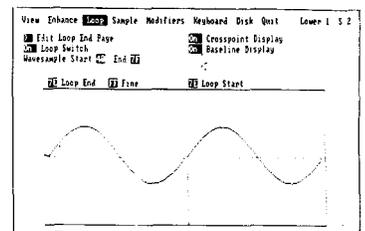


The Modifiers Screen



The 3D Screen

The Loop Screen



tracking is easier than ever. Again the emphasis is on simultaneous visual presentation of all parameters and values which help yield far more predictable results.

KEYBOARD: The Keyboard screen is used to establish how notes will be performed. It controls program select, keyboard wavesample assignments, performance controls (ie, pitch bend, range, MONO mode), LFO, upper or lower keyboard select, and MIDI communications. The fun part is that you can actually play the Mirage from the computer's function switches! (This is true of all screens.) This feature eliminates the need for MIDI echo back or even playing your Mirage keyboard. All keyboard-related referencing of your sampling work can be done from the computer terminal. No more jumping back and forth between computer to Mirage.

DISK: The Disk screen is used to store and retrieve data from both the Mirage disk and the computer disk, and to print wave sample and program information currently loaded in the Mirage. You can access all Mirage disk operations from this screen. Vision adds a copy diskette macro command to assist in making copies of Mirage sound diskettes. The function copies the three upper and lower sounds of one diskette to that of another. Unfortunately, it's an all-or-nothing procedure. It cannot be used to copy a portion of the disk. This can, however, be achieved with multiple disk transfer commands between the program and the Mirage, We recommend that you

back up all your Mirage sounds to floppy disk. Storing work in progress on back-up disks protects against potential data loss in RAM. It's all too easy while you're learning the program to forget that certain parameters alter Mirage samples permanently.

QUIT: This screen safely returns you to DOS command level when you are finished working with Vision. As with all the other screens in the program, it functions quickly and efficiently.

The manual is concise and well-written and includes numerous tips and tutorials on loops, sampling techniques and solutions to problems on which the Advanced Sampler's Guide is unclear. David Hoke deserves a great deal of credit for writing a manual which really shows you how to succeed at sampling. He doesn't leave you in the desert telling you to go and find water as so many other manuals do. He is very specific and does not assume that you are some kind of computer whiz. The manual is written for the average user to get the most out of an excellent software package.

Bios: Leslie Fradkin and Elizabeth Rose are the owners of MIDIMAX Studios in NYC where they program the underscoring for several daytime soap operas, produce records, teach MIDI workshops and run a demo business. They author a monthly column called "DR. MIDI" in the magazine "International Musician and Recording World." They are also newlyweds.

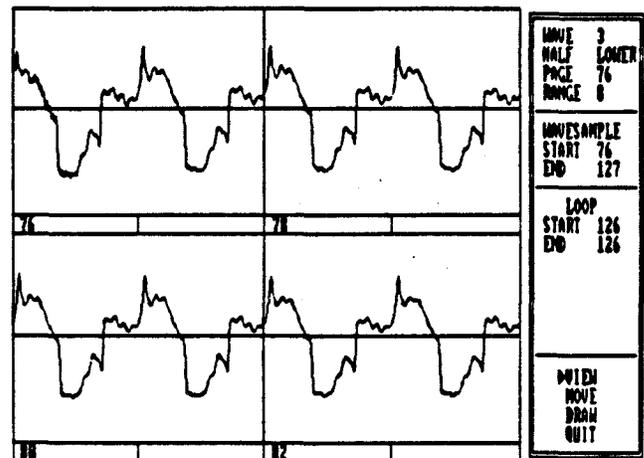
The Mirage / IBM-PC Link !!

SYNTHASSIST TM

Complete Parameter Controls and Graphics

GRAPH

SYNTHASSIST comes with a complete graphics package for editing your wavesamples. Any portion of the Mirage's memory can be viewed at varied resolution, from 1 to 128 pages per screen. This feature also uses simple cursor movements to draw minor modifications to your actual digitized sound wave. This is especially helpful in identifying aliasing, clipping, and other problem areas as well as smoothing and adjusting loops.



(Part of a series depicting the power and simplicity of each component of SYNTHASSIST, but why wait?!) **SEND FOR A FREE BROCHURE! or A \$12 DEMO DISKETTE or \$299 COMPLETE!**

Northeast Visions, 68 Manor Drive, Glenmont, NY 12077 (518) 439-0967

Erick Hailstone

Since the Mirage represents one of the only affordable samplers on the market today it is nice to see visual editing available for an affordable computer, the Commodore 64. At this point there are 2 or 3 such programs. This latest one comes from Ensoniq and bears great resemblance to their original VES for the Apple II (see Issue #6).

Equipment needed: Commodore 64, monitor, disk drive, 2 MIDI cables and a Passport or compatible MIDI interface. The MVES package provides you with a 5.25" disk for the C-64 and two special MASOS-C disks for the Mirage. The Commodore program is not copy protected and it is recommended that you back it up immediately!

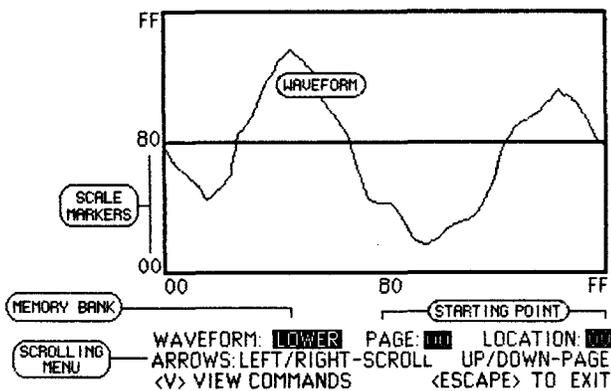
MVES allows you to view waveforms a page at a time, to edit using a graphics controller, to view and edit all Mirage parameters, and to access all MASOS functions as well.

After the program is booted up, you are asked which graphics controller you will be using. After making this choice the system will default to this selection each time you boot the program. Having tried using the computer's cursors, a joystick and a keyboard, I believe the Koala Pad to be the only choice. It is best suited for this type of work. The others made waveform editing an arduous task at best.

You are then presented with the main system menu:

- (1) Display Waveforms
- (2) Display Waveform Parameters
 Display Program Parameters
- (3) Keyboard/Program & Wavesample
- (4) Envelope & Envelope Modulation
- (5) Display Configuration Parameters
- (6) Wavesample Memory Bank Map
- (7) Data Manipulation Functions
- (8) Data Transfer Menu

Press 1 and you will see the Waveform Display Screen:



This is the first page of the lower waveform presently in the Mirage. Markers along the vertical and horizontal axes indicate minimum (00), midscale

(80), and Maximum (FF). Because of computer limitations the vertical resolution is compressed by half to fit on the screen. Below the display you will see whether you have the upper or displayed lower sample & page and location numbers. The middle a menu showing commands for functions, various Pressing "V" will scroll through commands. these Pressing "?" will list all command

functions as follows:

- (V) Scrolls thru command functions
- (B) Switches banks (upper or lower)
- (F) Fills the waveform in a solid color making it easier to visualize in some instances.
- (E) Finds and displays the loop point in the current wavesample. It is indicated by a broken vertical line in the center of the screen. Pressing the space bar will toggle this line on and off. NOTE: This does not show you where you should loop a sample but where an existing loop is.
- (C) Toggles the cursor on/off which is a solid vertical line in the center of the screen. The left and right arrow keys will move the cursor along the waveform. Current locations appear in hexadecimal below the display.
- (O) Effects a cursor offset from left or right. This information is necessary for rotating the waveform.
- (ESC) Escape is the arrow in the upper left corner of the C-64 keyboard. It takes you back one display or to the main menu.
- (D) Puts you in the drawing mode. A crosshair cursor appears on the screen (+) which shows your location and can be moved around the screen using the left/right arrows. Pressing the space bar changes the current sample point to the location of the crosshair (+). Alternating between the cursor key and the space bar will draw a new section of the waveform.
- (G) Selects the Graphics Controller. The crosshair is now controlled by the device attached to the game port. Pressing the triggering device on your controller while moving the cursor will draw a new waveform section.
- (P) Allows you to enter a page number from the computer and display it immediately.
- (L) Allows you to enter a location number from the computer and display it from that point immediately.
- (R) Sends the currently displayed page back to the Mirage.
- (H) Activates the Hex-Dec converter. Since much of the Mirage's thinking is done in hex and most of

humanity's is done in decimal this feature is a real show of mercy on Ensoniq's part.

(M) Exits the Cursor Mode and takes you directly to the MASOS function menu.

Rather than review all of the MASOS functions I refer you to Clark Salisbury's articles on the subject with the added assurance that this program makes them even easier and more understandable.

(N) Allows you to enter new data at the location of the vertical cursor. This is valuable for correcting small glitches.

This is a summary of basic commands of the waveform system and gives you some idea of what can be performed. This type of editing is valuable for smoothing out rough spots (noise, distortion, etc.). I don't see myself drawing work-of-art type waveforms that yield extraordinary new sounds. A page at a time with 256 pages would require a lot of time.

The other displays break up the Mirage parameters into logical arrangements.

(2) Wavesample Parameter Display (60) to (72):

These values are shown as Lower or Upper Wavesamples 1-8. MASOS Parameter values are displayed on this screen as well.

(3-4) Program Parameter Display:

When 3 is selected, Mirage Parameters (27) to (38) will be displayed. If 4 is selected Parameters (40) through (59) are displayed. These parameters cover most of the preset alterations you can make after you have your initial sample to work with. This aspect of the program is very helpful as you can see everything right in front of you as opposed to one parameter at a time.

5) Configuration Parameter Display:

This screen indicates Keyboard, MIDI, and Sampling Parameters (81) to (89).

(6) Wavesample Memory Map Display:

This, is the only display that can't be edited. It shows Parameters (60) to (65) and (72) for all 8 wavesamples. You may display this information for the upper or lower sample. This info is invaluable for multisampling or setting up split points.

(7) MASOS Data Manipulation Functions:

In addition to MASOS commands, the Rotate Wavesample Parameters (19) & (20) are also provided. Again, to reiterate, check your MASOS manuals, read Clark's articles and check out this program.

(8) Data Transfer From Mirage:

The Data Transfer Menu is as follows:

- (1) Load Upper Programs From Mirage
- (2) Load Lower Programs From Mirage
- (3) Load Configuration Parameters
- (esc) Exit or Enter Selection

MASOS-C allows the Mirage and the Commodore to transfer data instantly. However, if you have a MIDI cable go bad or get disconnected this will allow you to retrieve data once the problem has been corrected.

Additionally, there is a section entitled "Application Notes - Looping Techniques for Long Loops." Performing long loops on any sampler separates the men from the boys. This section explains many of the problems you will encounter and provides solutions with workable directions.

The MVES is everything it represents itself to be. The manual is concise and well written. I again recommend the Koala Pad (as does Ensoniq) for the graphic editing. Just being able to observe waveforms has been helpful. For example, load a sound into the Mirage then press (E) to find and observe the loop point. After doing this with several sounds you will begin to understand what a good loop point is. Being able to see all of the envelope parameters on the screen at one time makes programming less tedious. The speed at which you can change these values from the Commodore is slower then doing it from the Mirage so I suggest you keep them both within arm's reach. All in all, MVES (with the addition of the Input Sampling Filter) gives you the power to create sounds rivaling Ensoniq's factory sounds.



The Mirage won the Music & Sound Award for most innovative keyboard product at the recent Chicago NAMM Show. The award is determined by a dealer survey conducted by Music & Sound Retailer Magazine.

* *

it hasn't jelled enough to make our "Hypersoniq" section, but supposedly both Turtle Beach and Blank Software are working on "librarian" programs for Mirage sequences and samples. Programs are being developed for the C-64, the Mac, and the IBM-PC. Something that is fairly solid - Turtle Beach is selling a complete set of parameter settings for all the sounds on the first 18 Ensoniq disks for \$24.95. Check their ad in this issue for their address.

* * *

Starting next month - free ads in our classifieds will run for four issues (instead of five) unless re-submitted.

More improvements - You'll probably be, a little miffed if you just missed out on this (but that's the thing about improvements): Starting in July, Ensoniq is including disks 4-15 free with each Mirage.

* * *

We've received more than one inquiry about how to get out of the Apple II version of VES to make the modifications given in Tractor Topaz's articles in Issues #6 & #7. It seems that early versions of this program had a menu selection that allowed this. The later ones don't. If some hacker out there has a way of exiting VES without wiping it out of memory, please let us know.

* * *

We haven't heard from Data 1 for a while (& they owe us money), so watch out!

* * *

Several people at Ensoniq are actively involved in the Symposium on Small Computers in the Arts to be held in Philadelphia October 10th, 11th & 12th. If you're interested, write to P.O. Box 1954, Philadelphia, PA 19105.

* * *

While we haven't had a flood of responses yet in answer to our question regarding increasing our page count vs. keeping the price the same, what response we've had has been in favor of getting more and paying more. So, starting NOW (even as you read this), our rates are going to \$20/year. This won't affect anyone till they get their renewal notice. Meanwhile, we're going to use our bigger page count

to try to catch up on all those letters and articles we haven't been able to publish.

MIRAGE-NET

The following people or organizations have agreed to help with questions:

MIRAGE COMPUTER BULLETIN BOARD - Provided by John Connolly of Portland, Oregon for information exchange and file transfer. Phone (voice): 503-641-6260. Phone (BBS/computer): 503-646-2095. Free messages. Yearly membership for upload/download: \$25.

SAMPLING - Mark Wyar, (216) 323-1205. Eastern time zone (OH). Calls between 6pm and 11pm.

MIDI & SEQUENCING - Leslie Fradkin or Elizabeth Rose, MIDI-MAX Studios. Eastern time (NY). Calls between 10am and 9pm. (212) 628-5551.

MIDI & SEQUENCING - Markus McDowell. Any ol' time. (805) 987-9932 (Calif.)

MIRAGE HARDWARE & FIRMWARE - Scott D. Willingham. Eastern time (NY). Days. (716) 477-8089.

MIRAGE OPERATING SYSTEM - Mark Cecys. Eastern time (NY). Days. (716) 773-4085.

MASOS - Pete Wacker. Mountain time (AZ). 3 pm to 9 pm. (602) 937-1177.

SOFTWARE - Paul Braun. (805) 583-5315.

If YOU'RE interested in being listed on the Net, please give us a call. (503) 245-4763.

PROGRAMMING THE ESQ-1

by Clark Salisbury

Felicitations, hackers! If any of you read my short article in last month's Hacker about Ensoniq's new Wonder machine, the ESQ-1, you may have guessed that I'm kind of excited about this new widget. I've spent a lot of time learning (usually the hard way) to program "traditional" analog types of synths (ARP 2600, Moog system 15, Prophet, Oberheim, etc.) so when the ESQ-1 came down the pike it naturally peaked my curiosity. And good news! Those hours of woodshedding over arcane patch charts weren't wasted. The ESQ-1, although technically a digital system, is so similar in architecture to a sophisticated analog system that programming it turns out to be a total joy. And therein lies the reason for this current series of articles. For those of you who have never had experience with analog programming methods, I thought it might be nice to take an extended tour of ESQ-1 functions, offer some tips on programming, and clue you in to some of the tricks and secrets used by experienced professional programmers so that you too can become a GOD OF PROGRAMMING! Doesn't it just make your collective hearts go pitty-pat?

Obviously, we're not going to try to cover all of this information in this one paltry column. No sir! We're going to take our own sweet time and try to tackle each subject individually over the coming months. We're going to start this month with a basic overview of the ESQ-1, and I thought it might be appropriate to make some comparisons to what has come to be regarded as the standard analog synthesizer voice.

In the world of analog synthesis the most basic building block of sound is an arrangement of components not unlike that of the voice architecture in the ESQ-1. There are three connected parts that make up what I think of as a basic voice. They are the VCO (voltage controlled oscillator) VCF (voltage controlled filter) and VCA (voltage controlled amplifier). The VCO is used primarily as the source of raw material that we use to create a sound. This raw material (known as a waveform) is usually processed and refined by the VCF and VCA, and then sent on its merry way to an amplifier and speaker

system where it is turned into changes in air pressure, which is what we hear. If you've read this far, you are now an expert on synthesis and you can go home and play some Donkey Kong or something. Just kidding.

The voice architecture of the ESQ-1 is based primarily on this classical arrangement of components. There are some differences, however. First, most of the functions are digitally controlled, so we analog cowboys are going to have to get used to referring to DCOs and DCAs rather than the more familiar VCOs and VCAs (the effects of these components is quite similar to that of their voltage-controlled counterparts, fortunately). Another difference, and the one that gives the ESQ-1 its surprisingly broad repertoire of sounds, is found in the difference between the ESQ-1's DCOs and the VCOs or DCOs found in more conventional synthesizers.

Traditional VCOs and DCOs generally are capable of producing two or three basic waveforms, each waveform having a specific harmonic content. It is the mission of the dedicated programmer to elicit from this raw material (through filtering, modulating, and the like) the various sounds required. This is generally known as 'subtractive' synthesis; we start with a raw waveform, chock full of harmonic content, and try to remove those parts of the waveform that are not the sound we're going for. And this generally works pretty well, except that once in a while you come up against a sound whose harmonic content doesn't really match up with any of your synthesizer's waveforms no matter how much subtracting and manipulating you do. None of the waveforms produced by your synthesizer's oscillators has quite the right basic timbral characteristics to produce the sound you want. So what's the fix?

One obvious answer is to put more waveforms into the synthesizer in the first place. This is exactly what Ensoniq has done. Utilizing a technology that's not that much different from sampling, they have encoded in the ESQ-1's ROM (read only memory) a total of 32 different waveforms (also known as wavetables), some of which are general purpose, and some of which are optimized for specific sounds. Then to take this idea a step further, the ESQ-1 allows you to use as many as three of these waveforms simultaneously to create a patch (the word "patch" is borrowed from analog synthesizer terminology. In the old days of modular synthesis, a sound was developed by physically plugging different synthesizer components together using patch cords. The resulting sound was called a "patch").

The waveforms used in the ESQ-1 come from a variety of sources. Some are arrived at through a variety of digital synthesis techniques, while others are simply sampled and blown into the ESQ-1's memory. The latter type are generally of the multisampled persuasion, for those of you who may be wondering. This means that the waveforms are sampled from a number of areas of the original instrument's range, and then assigned to the appropriate areas of the ESQ-1's keyboard. This is so that when you play back a sample at middle C on the ESQ-1 you are calling up

a sample that was originally taken from a note somewhere near middle C on the instrument originally sampled. Then if you play a low A, the ESQ-1 switches to a sample originally taken near that note on the sampled instrument. The reason for this is that many acoustic instruments have a timbre that can change (sometimes quite drastically) throughout their range. Sampling a single waveform for one pitch and then trying to transpose it up or down far enough to cover the entire note range of the ESQ-1 would yield results which didn't really sound very much like the original instrument in the extremes of its range. Multisampling helps to overcome this problem.

At any rate, this combination of synthetic and sampled waveforms allows for a much wider variety of timbral colors than are typically found on analog systems. Ensoniq breaks these 32 waveforms down into 5 basic categories: Classic synth waveforms (for those of you familiar with analog technology, these typical sawtooth, pulse, and other waveforms should make you feel right at home for the most part. The notable exceptions are the three noise waveforms. The ESQ-1 does not use a noise generator. Instead, three different types of noise are sampled and stored as waveforms in wavetables along with everything else. When they are played back they become periodic waveforms, since the ESQ-1 simply reads out the wavetables repeatedly for sustained sounds. Or at least, it does something along those lines. I can't wait to hear what some of you more proficient programmers come up with using these waveforms). The next category is sampled waveforms. These include waveforms used for those really hard to synthesize sounds; piano, human voice, reeds, kick drum (you should hear a kick drum as a periodic waveform played a couple of octaves higher than the original sample. It sounds almost like a bassoon!) Next category is additive synthesis waveforms - very digital sounding, very cool. Formant waveforms make up the fourth category. These waveforms each have a sharp peak somewhere within their frequency spectrum, giving them a quacky, voice-like quality. These are probably also good for certain types of string sounds, and perhaps certain reed instruments. The final category is band-limited waveforms. These are sort of a hodge-podge of other types of waveforms, but with some of their harmonics removed. Pages 28-30 of the owner's manual contains a good description of each waveform, along with a few applications suggestions.

Now I know what some of you more devious hackers are thinking. Can these waveforms be changed? The official statement from Ensoniq is no, they can't. But when I asked the question, I got the distinct impression that they weren't letting on about something. I leave it to you to ponder.

Anyway, let's continue with our comparison of the ESQ-1 to standard analog systems. Each ESQ-1 voice contains a standard 24-db-per-octave low-pass filter, quite similar to the filters you'd expect to find on any good analog synth. The filter routes to a digitally controlled amplifier. It is here that the final volume contour (or envelope) is programmed. Also controlled here is voice panning. Any voice within the ESQ-1 can be panned left, right, center,

or anywhere else in the stereo field. What's more fun, though, is to control panning from an LFO, for auto-pan effects. Or from an envelope generator. Or from keyboard position. As a matter of fact, this brings up a significant point about the ESQ-1. Almost any function of the ESQ-1 can be modulated. And for modulation, you have a total of 15 (count 'em) sources for modulating. There are four complex envelope generators. Three multi-waveform LFOs, each with a humanize (random frequency shifting) function. Two kinds of velocity modulation, and two kinds of keyboard modulation. And provisions for wheel, pedal, pressure (from an external source) and external control modulation. Whew! We'll go into each of these in greater depth over the coming months (or maybe years, judging from the number of parameters we have to deal with).

Oh. There's one little thing I've left out. A simple but very powerful feature implemented in the ESQ-1. This is the addition of three strategically placed digitally controlled amplifiers, and it's a feature I love. The output of each DCO is connected to the input of its very own OCA. This simple arrangement allows for some wonderful programming options. It means that you have a separate control

for the volume envelope for each oscillator. This is great! For example, you could use two DCOs set to sawtooth waveforms, slightly detuned for a chorusing effect, and with a nice long bowed attack, full sustain, and a long release time (final decay). Then you could take your third oscillator, grab one of the bell-type waveforms, tune it up a couple of octaves, and give it a sharp attack with no sustain, and a relatively short release time. Presto! Instant layering - but without using up any extra keyboard voices as you would if you were doing normal layering! Now go and layer that with another keyboard sound. Or better yet, use velocity to bring the bell sound in only when you play the keyboard hard enough. Or set up a velocity switch, where you hear the bells only when you play softly, and the strings only when you play hard. Or...

But I guess I'm getting ahead of myself. Not to worry, though. We'll cover all this stuff and lots more goodies in the upcoming months. In the meantime, if you have a specific question regarding operation of the ESQ-1, or the Mirage for that matter, or if you've heard any good jokes lately, drop me a line c/o the Hacker. Until next time then - have a random day.

THE INTERFACE

Dear Editors:

Before I get on with the rest of this letter: I am listed in your MIRAGE-NET and have recently had a change in phone number. My new number is (716) 467-2328, 8-5 Eastern time. I receive many interesting calls from other hackers and am happy to answer any questions that I can.

In Issue 8 on page 15 there is an interesting reply from Ensoniq that in some way implies (actually states) that schematics and other information on the Mirage can be obtained. I have called Ensoniq about this and they still claim that no schematics exist, let alone are available. I would like to know then what their statement in Issue 8 meant. Also, as an electrical engineer and integrated circuit designer myself, I am curious to know how a complex electronic device like the Mirage is designed and manufactured without the aid of schematics.

I have traced most of the digital circuitry of the Mirage and am happy to share it with interested hackers. If anyone else has traced sections of the Mirage circuitry, I would like to hear from them. I am especially interested in the analog circuitry, the disk format, and any firmware or software insights.

In the upcoming round of new sampling machines, Ensoniq has a couple of big advantages. They aren't hardware power and probably won't continue to be price. They are a large software (both in terms of sound libraries and editors) and user base. A third

advantage is the existence of a quality user's newsletter like TH. If designers were told more about the hardware, Ensoniq's position could be strengthened by the availability of hardware enhancements to the basic machines. This has done wonders for the computer industry and I see no essential difference here. Besides, I don't think that there is much in the Mirage design that would aid other manufacturers - they don't have the proper VLSI parts and most of the rest of the hardware is fairly straightforward.

I am glad to see that Ensoniq is healthy and successful and is developing new products to enhance its market. I hope that it will continue to allocate some of its resources to enhancing and updating the Mirage. If so, here is my wish list:

- 1) Enhanced S-stage envelopes
- 2) A pitch envelope
- 3) An envelope controlled mix mode
- 4) Delayed modulation
- 5) Modulation and pitch bending to one oscillator only
- 6) A 4-voice, layering mode
- 7) a stack (unison) mode
- 8) An arpeggiator

I believe that most of these enhancements are within the realm of the possible. Here's one more that's a bit far out: a new operating system that would turn the Mirage into a simple digital waveform synthesizer. A few pages of memory would contain

simple one-page Waveforms and the rest of the memory could store a couple hundred parameter patch presets.

Concerning factory samples: I would like to see Ensoniq make a deal with 360 Systems to convert their MidiBass samples to Mirage format.

I have a couple more questions for Ensoniq. I understand that the new Mirage keyboard will not directly replace the older "keyboard." How extensive is the work required to make the new keyboard fit and can it be done by those of us who care to try? I don't want to sell my old Mirage at a loss just to upgrade the keyboard and I don't have room in my setup for another keyboard controller. My second question involves my pitch wheel: it's off-center. When advanced, the pitch rises to the maximum sharp bend and then wraps around to the maximum flat pitch (with OS 2.4 and above, older OS work fine - although the wheel is more sensitive in one direction than the other). Is there a simple fix that doesn't require several weeks in the shop?

Lastly, I am processing this letter on my new Atari 520 ST and would be interested in hearing from any of you hackers who are developing homebrew MIDI and Mirage software for it. I hope to develop some of my own if I ever get time. To commercial software developers: I will not pay \$400 for a visual editing system!

Keep up the excellent work.

Sincerely,

Scott D. Willingham
Rochester, NY

Ed. - Regarding schematics, by now you've probably seen Ensoniq's response to Jeff Cunningham in Issue #13; established developers who sign non-disclosure agreements may be able to obtain them. Certain Hacker subscribers have gone to the trouble to reverse engineer them. An ad in our classifieds may bring a response.

Ensoniq's response: You would need to replace the keyboard, the metal case, the power supply, the wiring harness, the floppy disk cover, the wheel assembly and maybe the disk drive. The cost of doing this would be highly prohibitive.

The operating system was changed to alter the pitch bend response for use with other MIDI instruments. This change makes the wheels more sensitive to centering. This is simply a matter of loosening the nut on the pitch wheel pot and recentering it. A Service Center should be able to perform this in less than a day.

Dear Hacker,

I would like to thank you for giving us Mirage users such a fantastic medium of communication. I have really enjoyed every issue. I would like to take a moment to personally thank Steve Coscia at Ensoniq

for his help on a recent service problem I had with my Mirage. It has been in for repair twice since I purchased it in late November. The 1st time it was sent off for repair it took almost a month to get it back. Being a working musician, I had become "dependent" on the sound of the Mirage. After getting by without it for a month, it finally was repaired. About a month later it freaked out again at the most inconvenient time... several important jobs coming up out of town. I called Carouso Music (where I purchased it) but got nowhere. I called Steve Coscia at Ensoniq and explained my situation. I sent it via next-day air and had it back in a week. I have to thank Steve for his personal attention to my problem. I guess some keyboards are like cars... some are lemons. If my Mirage freaks out again....well...I'll let you know, Steve!

Best regards,
Kelly Norris
Montgomery, Alabama

Dear Hacker,

I have been following with interest the letters from Larry Dunn concerning MIDI merging and/or switching. You don't seem to get the point if you still insist a switcher will do the same job. It's not the same. I have the same problem trying to program my TX-7 from a computer while triggering it from the Mirage. Every time you make a move on the computer, you have to throw the MIDI thru switch on the Mirage to hear it. Maybe you've never been in this situation, but it gets tedious. With the merger, you just go, one hand on the keyboard, the other on the computer. It makes a world of difference. This was the real answer to his first letter, and now he's figured it out and you still don't get it. That's why mergers cost so much more!

Nick DiFabbio
NYC.NY

Ed. - Actually, we didn't insist that a switcher will do the SAME job - just that it will do the job. In Issue #10 we also mentioned that an update to SONIC EDITOR was available so you could send a note to the Mirage Multi-Sampler without either. When Larry Dunn first asked for "a way," we gave the least expensive way to get there. Yes, it can get tedious - that's one reason switchers cost so much less! If this newsletter were for Fairlight users maybe we would have given a different response. (Sonic Access & Ensoniq also list a switcher as a solution to this problem.)

Dear TH:

First, thanks for creating the indispensable second-half of the Mirage. I'm not exaggerating when I say I can't imagine working without it, since sampling and the Mirage are new concepts for me. Now a suggestion and a question.

The suggestion: How about keeping personal interviews (Mr. Metcalf's in Issue 11, for example), more concise? To be specific, reader questions/answers and contributing workshops give your readers solid information they can readily use, whereas the musical, technical, and job background of Tom Metcalf will be less helpful. About half of that segment on Mr. Metcalf, by the way, was excellent! Let's keep more to the Q & A which will most benefit the users' group.

The questions in Issue 11 Ensoniq answered a question from Brad Dahl about moving wavesamples. I had that same question myself, and I'm taking your advice of sending for Issue 6. However, what about the second part of the question? What does the "CE" in the Mirage readout mean?

Thanks again!

Dave Caruso
Southgate, MI

Ed. - Regarding the interview, we've had quite a few favorable comments - it can't be all "Parameter 37, wavesample such and such." It's also nice to find out about the people involved - if nothing else, it gives you some basis to judge their remarks. (Besides, Tom's my hero.) We're trying to cover just about every aspect of the Mirage that we can. The interview gets more into the meat of things in parts II and III.

Ensoniq - "CE" means Copy Error.

Dear Editors

In past issues, several readers have asked about expanding the capability of the Mirage's sequencer. For what it was intended to do (act as a "scratchpad" for ideas), I have found it to be very useful. However, for owners of the Macintosh 512K, the capabilities can be expanded with the use of Concertware + MIDI (Great Wave Software, Menlo Park, Ca). In general, this package provided recording (MIDI instrument, mouse, or Mac keyboard), playback (MIDI instrument or Mac), editing, and printing of your own music, transcribed music, or existing Concertware and Musicworks files. Hearing a complex (up to 8 voices) piece of written music play through the Mirage is a real treat.

The Mirage Sequencer can be used in the following ways:

* Sequences (1 to 8 voices) can be created on the Mac and then recorded directly into the Mirage sequencer. This gives you complete and accurate control of your sequence. It can easily be edited in any way you want. Concertware also has the quantization feature that pretty accurately replicates sequences played directly into the Mac with the Mirage.

* Single voice sequences can be created on the Mirage and then recorded on the Mac where they can then be edited using any standard musical notation

tools. These sequences can then be re-recorded back to the Mirage.

* Existing Concertware and Musicworks song files (classical, pop, rock, jazz, etc.) can be recorded and stored by the Mirage sequencer on your sound disks. For longer pieces, you might need the sequencer expander. However, you can easily get some really great sequences this way that can really show off what the Mirage can do.

* Single voice sequences created on the Mirage can be printed out on the Mac through Concertware in standard musical notation that is of surprisingly good quality.

One limitation that I have found is that I can't get the printout I want from the demonstration Mirage sequences (e.g. "American Bandstand"). If you record the Mirage sequence directly into the Mac, it is recorded in a linear (single line) fashion. In other words, chords are notated and played as sixteenth note runs. The notes are all there, but they exist as single line (bass, chords, melody, everything). The problem is that Concertware will only record one voice at a time and the voices on the Mirage sequences can't be separate voices. This really isn't that difficult since bass lines, lead lines and chords are easy to pick out. You will also have to redefine the measures since Concertware can't distinguish pick-up notes. If anyone figures an easier way to transcribe the stock Mirage sequences, please let us know.

Concertware + MIDI lists for \$139.95. However, you can get it from mail order houses (e.g. Programs Plus, Stratford, CO) for \$64.00. Even at list price, I feel that Concertware + MIDI is an excellent product. Concertware song disks are also available. In addition, many Concertware and Musicworks song files are available from user groups and bulletin boards.

Very truly yours,

Ronald S. Lemos

Dear Hacker,

SYNCHRONICITY: I am a composer and have recently started getting some projects scoring videos. I have been asked to provide the sound effects as well as the music for one of them so I am now exploring ways to synchronize my software based sequencers (Commodore) to the video. Here is what I have founds

I can use the Mirage Keyboard MIDI clock output to drive the following sequencers:

- 1) Passport MIDI 8 Plus
- 2) Musicdata Sequencer II

I cannot use it to drive my Syntech Studio I sequencer. Anyone know why? I have used the following:

- 1) LinnDrum trigger output
- 2) LinnDrum Sync output

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3) Sync track from tape (Audio & Video)
to drive the Mirage (P85 & P86 on) which in turn
sends a MIDI clock to the computer.

I would like to be able to sync to SMPTE as well.
Does anybody know of an inexpensive way to do this?
I am aware of the Roland SBXB0.

Aaron Hallas
Anaheim, Ca.

Ensoniq's response: The Syntech requires a MIDI
start command to initiate record and playback when
set to the "MIDI Clock" mode. The Mirage does not
send these commands.

A number of the sequencer packages for the Macintosh
have SMPTE sync

Dear Transoniq Hacker,

I own a Mirage rackmount and a Yamaha Clavinova. I
have a couple of questions I need detailed answers
for:

1) How can I add a Pitch Bend and Modulation wheel
without buying a new keyboard?

2) My Yamaha has a two-track sequencer. How can I get
it to record my Mirage? (The Mirage easily

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records the Yamaha but I can't get the Yamaha to
record the Mirage.)

3) Where can I buy a good sample of a harmonium, a
small keyboard instrument of India, pumped with the
left hand and keyed with the right?

Thank you very much for your help.

Sincerely,

William Jaffe
Escondido, CA

Ensoniq's response: Yamaha makes an add-on, the
MCS-2, for adding Pitch Bend and Modulation. Does
the Yamaha sequencer send its sequences out MIDI? If
it doesn't, you're out of luck. You might try
connecting MIDI out of the Yamaha to MIDI IN of the
Mirage and MIDI THRU of the Mirage to MIDI IN of the
Yamaha. If the Yamaha records incoming MIDI data
into its sequencer and plays it back out MIDI, this
may work. Or, the Yamaha might also get confused by
this looping of its outgoing data onto itself. Let
us know.